State of Wisconsin/Department of Transportation
RESEARCH PROGRESS REPORT FOR THE QUARTER ENDING: Dec 31, 2002

Program: SPR-0010(36) FFY99	**Part: II Research and Development**
Project Title: Evaluation of Interlayer Bonding in HMA Pavements	**Project ID:** 0092-02-13
Administrative Contact: Nina McLawhorn	**Sponsor:**
WisDOT Technical Contact: Len Makowski	**Approved Starting Date:** Oct 29, 2002
Approved by COR/Steering Committee: $49,510.66	**Approved Ending Date:** Oct 28, 2003
Project Investigator (agency & contact): Yusuf Mehta: **Error! Bookmark not defined.**	

Description: This study will be conducted over 12 months and will consist of the following four tasks

Task I: Data Collection
Task II: Literature Review
Task III: Evaluation of Tack Products & Application Rates & Other Techniques
Task IV: Final Report

Total Study Budget	Current FFY Budget	Expenditures for Current Quarter	Total Expenditures to Date	Percent Complete
$49,510.66	**$24,755.33**	$0.00	**$0.00**	**7 (%)**

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Progress This Quarter:
(Includes project committee mtgs, work plan status, contract status, significant progress, etc.)

The work on the project began on January 01 2003 after consulation and approval to proceed from Mr. Thomas Brokaw of Wisconsin Department of Transportation.
The project began with **Task I: Data Collection and Task II: Literature Review**

Objective

1. To determine the state of the art practice and issues facing state agencies (including Wisconsin DOT) throughout the country.
2. To identify projects in Wisconsin that have shown interlayer slippage problems during and after construction and also projects, which have not shown any problems.

Task Completed

1. Based on an extensive literature review, a survey sheet was developed (survey questionnaire attached)

Ongoing Tasks

1. The research team has begun contacting various state agencies to collect the following data:
    a. Issues/Concerns related to interlayer pavement bonding.
    b. If yes, are they related to pavement structure, type of tack coat, or construction practice.
    c. Pavement structural data/FWD data and quality control data on good and poor performing sections with tack coat, if any.
    d. Current specifications on tack coat and its application or on other techniques used to ensure bonding.
2. Obtain data on various projects exhibiting both poor and good interlayer bonding performance from Wisconsin DOT.

To date six state agencies have been contacted, two of them have provided all the necessary information and agreed to provide monitoring data. The research team will contiue to collect information from various state agencies.

The Survey Questionnaire sheet
Date:

State:

Contact Information:

Name:
Phone/email:
Other:

Questions concerning construction issues:

1. Number of construction projects using tack coat per year:
2. Are any other techniques used for interlayer bonding?
3. Are there any specific conditions under which tack coat is applied?
   (example: traffic, pavement surface, weather conditions)
4. Are there any issues with strength of tack? Premature stiffening of tack?
5. Any specific problems observed during application?
6. Are there any issues with following specifications?
7. Are there any penalties for following specifications? (re-do's?)
8. Any difference in pavement performance due to tack coat?
   Any aging concerns? (example: sliding, shoving, rutting, failure cracking)
9. What are the pavement structures like? (layers, thicknesses)
   (both with and without tack)
10. Any overall concerns?
11. Any monitoring of pavement performance related to tack coat? (FWD's?)
12. Availability of the data of pavement sections / performance where tack coat
    or any other techniques were used?
13. Open ended question:
    Based on experience, should the state of the art of practice change?
14. Who supplies the tack coat? Is application out-sourced?

Questions concerning Specifications: (a copy of relevant specifications is requested)

1. Type of tack?
2. Application rate?
3. Curing period?
4. Temperature of tack?
5. Required uniform application?
6. Uniformity at junction of applications?
7. Air temperature range?
8. Weather conditions? (mist, rain, snow conditions?)
9. Milled / non-milled?
10. Surface condition? (Clean of debris? Dry?)

Work Next Quarter:

1. Synthesize and analyze the data collected from the survey to determine if there are any trends and patterns that could identify possible causes of interlayer bonding slippage and steps taken to prevent it.
2. Identify projects in Wisconsin DOT that have shown interlayer slippage during and after construction, and also projects which have not shown any problems. Also, identify new construction projects for inspection.
3. In March, when the construction season begins in Wisconsin, coordinate with the construction crew and an assistant from ERES Consultants, Inc to conduct inspection of these projects in Wisconsin highways and collect data.

Circumstances affecting progress/budget:

Paperwork issues delayed the start of work by almost two months.

Gantt Chart:

PROJECT I.D.	STARTING DATE	COMPLETION DATE	MONTH	REPORT #	PERCENT OF
PROJECT # 0092-02-13	**Oct 29 2002**	**Oct 28 2003**	**FEB 05 2003**	1	

CONSULTANT FIRM NAME	% TIME ELAPSED	TOTAL PROJECT FUNDING	CONTRACT FUNDING
Rowan University	25.00%	0%	0%

NAME OF STUDY

EVALUATION OF INTERLAYER BONDING IN HMA PAVEMENTS

TASK *	YEAR / MONTH	2001/2002 Qtr 1	2003 Qtr 2	2003 Qtr 3	2003 Qtr 4	Project	Task Complete Last Report	Task Complete This Report	Project Complete
TASK 1 : Data Collection*		■	■	■		20	0	11	2
		▒							
TASK 2 : Literature Review*		■	■			20	0	16	3
		▒							
TASK 3*: Evaluation of Tack Products, Application Rates, and Other Techniques		■	■	■	■	37	0	0	0
TASK 4 : Final Report					■	23	0	0	0
SHOW PROGRESS BY USE OF A BAR CHART:	SCHEDULED	■	■	■	■				
	COMPLETED	▒				100			5

* Work began on January 1, 2003

Note: Gantt chart shown in State Fiscal Year Quarters